

# **Learning Based Automatic Face Annotation for Arbitrary Poses and Expressions from Frontal Images Only**

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## **SUPPLEMENTARY MATERIAL**

**In The IEEE Computer Society Conference on Computer Vision and Pattern Recognition CVPR 2009  
Miami Beach, Florida, USA, 20-25 June 2009.**

**Real World Error for Automatic Annotation from CMU PIE Database**

<b>Pose</b>	<b>AVERAGE FACE CROPPED AREA (pixels<sup>2</sup>)</b>	<b>ASSUMED FACE CROPPED AREA IN REAL WORLD (mm<sup>2</sup>)</b>
30 Down (C07)	150x140	160x180
30 Up (C09)	130x140	160x180
22.5 Left (C29)	140x150	160x180
45 Left (C11)	120x150	160x180
22.5 Right (C05)	140x150	160x180
45 Right (C37)	120x150	160x180

*Units for Mean Error and Standard Deviation in real world : mm per landmark point*

<b>Pose</b>	<b>SVR</b>		<b>Boosted SVR</b>		<b>GPR</b>	
	<b>Mean Error</b>	<b>Standard Deviation</b>	<b>Mean Error</b>	<b>Standard Deviation</b>	<b>Mean Error</b>	<b>Standard Deviation</b>
30 Down (C07)	2.49	0.86	2.42	0.69	1.99	0.54
30 Up (C09)	2.23	0.59	2.07	0.53	1.77	0.42
22.5 Left (C29)	2.92	0.85	2.75	0.76	2.21	0.56
45 Left (C11)	3.49	0.81	3.26	0.74	2.92	0.74
22.5 Right (C05)	2.68	0.59	2.54	0.5	2.11	0.42
45 Right (C37)	3.34	0.82	3.09	0.67	2.71	0.53

<b>Overall</b>	<b>Mean Error</b>	<b>Standard Deviation</b>	<b>Best Case Result (mm/landmark point)</b>	<b>Worst Case Result (mm/landmark point)</b>
<b>SVR</b>	2.84	0.85	1.27	6.48
<b>Boosted SVR</b>	2.66	0.74	1.01	4.98
<b>GPR</b>	2.26	0.65	1.03	4.08